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JP 3009482 B2

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CLAIMS

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(57) [Claim(s)]

[Claim 1] In the disposable diaper which has a non-liquid-permeable sheet, a liquid-permeable sheet, and an absorber, and has the barrier cuffs with which the free section of elastic elasticity turned to the crosswise both-sides section of a product inside further the flap which constitutes the flap section which is an outside [ section / free / of the aforementioned barrier cuffs ], and is in the method of the outside of a side from the side edge of an absorber -- a member -- a sheet the overall length of a product disposable diaper -- crossing -- and a flap -- a member -- the disposable diaper with which the whole is liquid permeability mostly and the field covering the overall length of the product disposable diaper of the flap section of a sheet is characterized by the ability to penetrate liquid to a rear-face side from a use side side by this

[Claim 2] The disposable diaper according to claim 1 with which the aforementioned non-liquid-permeable sheet and a liquid-permeable sheet do not exist in a flap portion.

[Claim 3] In the disposable diaper which has a non-liquid-permeable sheet, a liquid-permeable sheet, and an absorber, and has the barrier cuffs with which the free section of elastic elasticity turned to the crosswise both-sides section of a product inside further The liquid permeability barrier sheet which constitutes the barrier cuffs which have the elastic flexible member made to stand up in the use side side of a product disposable diaper so that it may estrange from the aforementioned liquid-permeable sheet in a busy condition to the point of the aforementioned free section Extend in the method of the outside of a side from the side edge of the aforementioned absorber, and the flap section is constituted. The method portion of the outside of a side of the aforementioned liquid permeability barrier sheet extends in the method of the outside of a side [ side edge / of a liquid-permeable sheet ]. The aforementioned liquid-permeable sheet and a non-liquid-permeable sheet are crossed to the overall length of a product disposable diaper. the side edge of a liquid-permeable sheet Consider as the inside [ side edge / of a non-liquid-permeable sheet ], and the side edge section of a liquid-permeable sheet is fixed to a non-liquid-permeable sheet with hot melt adhesive. The liquid permeability barrier sheet which constitutes the aforementioned flap section covers the overall length of a product disposable diaper. And the disposable diaper characterized by the thing of the longitudinal direction of the flap section for which liquid permeability is mostly shown in the whole, and the crosswise middle of the aforementioned liquid permeability barrier sheet is being fixed with hot melt adhesive to the use side side of the aforementioned non-liquid-permeable sheet.

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## DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Industrial Application] A flap portion has liquid permeability and this invention relates to the disposable diaper which prevented \*\*\*\*.

[0002]

[Description of the Prior Art] There is a remarkable thing in improvement of a disposable diaper in recent years, and there is steamed prevention at the time of wear as a technical problem of the improvement.

[0003] in order to solve this technical problem, to JP,62-88705,U, the side-cut portion is buried to the so-called side-cut portion, and (it will be called the example 1 of precedence below) in \*\*\*\*\* is known in the aeration waterproofness sheet so that the whole disposable diaper may serve as a rectangle

[0004] Moreover, although it differs from the above-mentioned technical problem, in order to exclude the futility of the material in trim cut processing for forming the circumference portion of a foot, forming a side flap with a single sheet (henceforth the example 2 of precedence) is indicated by JP,1-201502,A.

[0005]

[Problem(s) to be Solved by the Invention] \*\*\*\*\* it can, to be sure, prevent \*\*\*\* at the time of wear to some extent by existence of the aeration waterproofness sheet in a side flap portion according to the above-mentioned example 1 of precedence -- at least -- the portion of order -- being steamed -- it cannot prevent at all For example, supine or when sleeping to lie prone, a small child's \*\*\*\* in a back side or a venter is remarkable. Therefore, a side flap portion is steamed and an effect is very small in practice only at prevention. Moreover, it is difficult for it to be necessary to supply an aeration waterproofness sheet intermittently and to fix to a production line, and to make it join to the main part of a disposable diaper along with one curve of an aeration waterproofness sheet, when attaching the aeration waterproofness sheet concerned to the main part of a disposable diaper in a manufacture stage unless it is a manual operation, and it is not practical. [ of applying to this kind with which mass production method is demanded of disposable diaper as it is ]

[0006] On the other hand, although the example 2 of precedence is effective about reduction of the cost of materials, it does not solve the technical problem of the steamed prevention.

[0007] Therefore, in the 1st \*\*, it is steamed and the technical problem of this invention is to offer [ preventing certainly \*\*\*\* accompanying a part for the liquid in a loose passage also in a back side and a venter by the thing at the time of wear for which it has especially barrier cuffs, and ] the structure of the disposable diaper which fitted mass production method subordinately.

[0008]

[Means for Solving the Problem] Invention of this invention which solved the above-mentioned technical problem according to claim 1 In the disposable diaper which has a non-liquid-permeable sheet, a liquid-permeable sheet, and an absorber, and has the barrier cuffs with which the free section of elastic elasticity turned to the crosswise both-sides section of a product inside further the flap which constitutes

the flap section which is an outside [ section / free / of the aforementioned barrier cuffs ], and is in the method of the outside of a side from the side edge of an absorber -- a member -- a sheet the overall length of a product disposable diaper -- crossing -- and a flap -- a member -- the whole is liquid permeability mostly and it is the disposable diaper with which the field covering the overall length of the product disposable diaper of the flap section of a sheet is characterized by the ability to penetrate liquid to a rear-face side from a use side side by this

[0009] Invention according to claim 2 is a disposable diaper according to claim 1 with which the aforementioned non-liquid-permeable sheet and a liquid-permeable sheet do not exist in a flap portion.

[0010] In the disposable diaper which invention according to claim 3 has a non-liquid-permeable sheet, a liquid-permeable sheet, and an absorber, and has the barrier cuffs with which the free section of elastic elasticity turned to the crosswise both-sides section of a product inside further The liquid permeability barrier sheet which constitutes the barrier cuffs which have the elastic flexible member made to stand up in the use side side of a product disposable diaper so that it may estrange from the aforementioned liquid-permeable sheet in a busy condition to the point of the aforementioned free section Extend in the method of the outside of a side from the side edge of the aforementioned absorber, and the flap section is constituted. The method portion of the outside of a side of the aforementioned liquid permeability barrier sheet extends in the method of the outside of a side [ side edge / of a liquid-permeable sheet ]. The aforementioned liquid-permeable sheet and a non-liquid-permeable sheet are crossed to the overall length of a product disposable diaper. the side edge of a liquid-permeable sheet Consider as the inside [ side edge / of a non-liquid-permeable sheet ], and the side edge section of a liquid-permeable sheet is fixed to a non-liquid-permeable sheet with hot melt adhesive. The liquid permeability barrier sheet which constitutes the aforementioned flap section covers the overall length of a product disposable diaper. And it is the disposable diaper characterized by the thing of the longitudinal direction of the flap section for which liquid permeability is mostly shown in the whole, and the crosswise middle of the aforementioned liquid permeability barrier sheet is being fixed with hot melt adhesive to the use side side of the aforementioned non-liquid-permeable sheet.

[0011]

[Function] In this invention, the whole simultaneously of the flap section which extends in the method of the outside of a side from the side edge of an absorber is made into liquid permeability. for example, the flap which a liquid-permeable sheet and a non-liquid-permeable sheet do not exist, but consists only of a liquid permeability nonwoven fabric substantially in a flap portion concretely -- a member -- a sheet constitutes -- having -- this flap -- a member -- since the sheet is arranged covering the overall length substantially [ a disposable diaper ], \*\*\*\* is prevented not only in a side flap portion but in order

[0012] furthermore, a flap -- a member -- since the sheet has extended for the overall length of a disposable diaper -- the production line of a disposable diaper -- setting -- the flap concerned -- a member -- by supplying continuously the material which constitutes a sheet in the direction of a line, joining it continuously to other elements of a disposable diaper, and carrying out horizontal cutting after that, an individual disposable diaper can be obtained and mass production method is very easy

[0013] On the other hand, the disposable diaper which has the barrier cuffs which have the prevention function of a loose passage is known. the case where this kind of barrier cuffs are constituted -- a prevention of a loose passage sake -- the disposable diaper for liquid in a loose passage -- in order to prevent osmosis in the side, while using a water-repellent nonwoven fabric, the thought which fixes to a non-liquid-permeable sheet the barrier sheet which constitutes the barrier cuffs, and constitutes the flap section is common Therefore, liquid permeability is not shown in the flap section.

[0014] However, especially in invention according to claim 1, in the flap section in the disposable diaper which has barrier cuffs, it shall have liquid permeability without taking the composition which makes the side edge of a non-liquid-permeable sheet extend to the side edge of a product disposable diaper (therefore, naturally it also has permeability).

[0015] In the disposable diaper of the function which prevents a loose passage, especially since it remains in a use side side while a part for the liquid in the loose passage has not been absorbed by the absorber, it is easy to produce \*\*\*\*. However, in invention according to claim 1, the prevention effect of

being steamed as compared with the case where the sheet of aeration water repellence is used in order to show liquid permeability, without making a non-liquid-permeable sheet existing will become very high in the flap section in the disposable diaper which has barrier cuffs.

[0016] It is required to take into consideration on the other hand, about the leachability to the method of the outside of an outside for the liquid which lets a barrier sheet pass, when it constitutes barrier cuffs. about this point, although it can be coped with, when it comes out, and the liquid-permeable sheet which uses for example, a water-repellent nonwoven fabric for a barrier sheet and which constitutes a top sheet is made to extend in the flap section as it is, the liquid-permeable sheet is transmitted, liquid exudes from the side edge, and there is a possibility of oozing out on the external surface of a product

[0017] However, since according to invention according to claim 3 the side edge of a liquid-permeable sheet is made into the inside [ side edge / of a non-liquid-permeable sheet ] and the side edge section of a liquid-permeable sheet is being fixed to the non-liquid-permeable sheet with hot melt adhesive, in the fixed portion, the propagation in the liquid-permeable sheet of liquid is prevented, and it does not ooze out on the external surface of a product.

[0018]

[Example] this invention is further explained in full detail according to an example below, referring to a drawing.

[0019] Drawing 1 and drawing 2 show the 1st example. In the disposable diaper concerning this invention, it consists of curdy pulp etc. between the non-liquid-permeable sheet 1 which consists of polyethylene etc., and the liquid-permeable sheet 2 which consists of a nonwoven fabric etc., for example, is placed between them like [ it is / sandglass being a form or / desirable, and ] illustration by the rectangular absorber 3 which has rigidity to some extent.

[0020] An absorber 3 can be wrapped by the absorbent paper (not shown) because of the configuration maintenance. the non-liquid-permeable sheet 1 -- the side edge of an absorber 3 -- some -- the side -- extending -- \*\*\*\* -- the extension section -- setting -- a flap -- a member -- it was joined with hot melt adhesive etc. and the sheet 10 has extended in the side further Moreover, above the junction superposition portion, the outside of a barrier sheet 4 is joined with hot melt adhesive etc. the elastic expansion and contraction which become the method of the inside of a disposable diaper of a barrier sheet 4 from thread rubber etc. -- a member 5 is fixed and the barrier cuffs B are constituted the longitudinal direction ends of these barrier cuffs B are joined to the upper surface of a liquid-permeable sheet 2 with hot melt adhesive etc. crosswise [ whole ] -- having -- \*\*\*\* -- therefore, the time of wear -- setting -- the longitudinal direction middle of the barrier cuffs B -- elastic expansion and contraction -- it stands up aslant toward a disposable diaper central site with the shrinkage force of a member 5 In addition, the flank of a liquid-permeable sheet 2 is being fixed to the non-liquid-permeable sheet 1 with hot melt adhesive etc. on the other hand, clear also from drawing 1 -- as -- a flap -- a member -- the sheet 10 is crossed to the overall length of a disposable diaper 6 -- a firm attachment tape -- it is -- a flap -- a member -- it is fixed to the sheet 10

[0021] thus, the constituted disposable diaper -- setting -- the way outside the side edge of the absorber 3 of a disposable diaper -- almost -- the whole -- liquid permeability -- the flap of permeability -- a member -- the moisture according to sweat etc. to disposable diaper longitudinal direction order since it consists of sheets 10, while being able to prevent \*\*\*\* in the circumference portion of a foot -- a flap -- a member -- since it penetrates through a sheet 10, \*\*\*\*\* can also prevent \*\*\*\* to a part for the back and an abdomen

[0022] drawing 3 -- the outside of a barrier sheet 4 -- a flap -- a member -- a sheet 10 is joined drawing 4 -- the undersurface of the non-liquid-permeable sheet 1 -- a flap -- a member -- a sheet 10 is joined

[0023] the flap which says the portion which drawing 5 prepares a permeability sheet with double-width liquid permeability, joins the crosswise middle to the non-liquid-permeable sheet 1, and is prolonged in the direction of an outside [ joint / the ] to this invention -- a member -- it is referred to as sheet 10A, among those a direction portion is made to stand up aslant, and the barrier cuffs B are constituted

[0024] furthermore, it develops -- making -- drawing 6 -- like -- liquid permeability -- a permeability sheet -- a flap portion -- setting -- turning up -- double -- carrying out -- the flap -- a member -- increase

of the intensity in a sheet 10B portion can be aimed at in order to aim at strong increase similarly -- drawing 7 -- like -- the flap of two sheets -- a member -- you may carry out the polymerization of the sheet

[0025] the flap in this invention -- a member -- in order to cross a sheet to the longitudinal direction overall length of a disposable diaper -- the firm attachment tape 6 -- the flap -- a member -- it is necessary to fix to a sheet 10, and when it is a nonwoven fabric with thin thickness, the danger of fracturing in the attachment portion of the firm attachment tape 6 is high Therefore, it is effective to take the increase means of the above-mentioned intensity.

[0026] furthermore, the flap which joined reinforcement plastic zone 10b in the shape of a grid to permeability nonwoven fabric base-material 10a as shown in drawing 8 in order to aim at strong increase -- a member -- sheet 10C can also be used moreover, a flap -- a member -- since the direction of reinforcement of a sheet is the cross direction of a disposable diaper, it is sufficient as a reinforcement plastic zone to have the shape of a stripe which is prolonged crosswise [ of a disposable diaper ] at least and keeps an interval in a longitudinal direction the width of face of the reinforcement plastic zone itself [ each ] -- 0.5-10mm -- especially -- 1-5mm and mutual alienation -- 2-10mm of an interval is desirable Let the quality of the material of a reinforcement plastic zone be polyethylene, polypropylene, polyester, or a vinyl chloride. It is desirable 0.5g / to use as 1-3g/a book especially one or more tensile strength of a reinforcement plastic zone.

[0027] on the other hand, the case where it reinforces with a reinforcement plastic zone -- be -- the case where it does not reinforce -- be -- the breaking strength of the cross direction of a disposable diaper is 500mm a speed of testing for /, and to be 3kg or more per inch is desired

[0028] moreover, a flap -- a member -- since it is desired for the intensity of a sheet to be mainly large in the anchoring portion of a firm attachment tape, only the portion can make a reinforcement sheet able to intervene from a fixed portion separately, for example, can be fixed to a non-liquid-permeable sheet in this case, a flap -- a member -- it is not indispensable that the intensity of a sheet is an above-mentioned range Furthermore, instead of having the same purpose and preparing a reinforcement sheet, some non-liquid-permeable sheets are made to extend crosswise, and a firm attachment tape can also be fixed to the extension portion.

[0029] by the way, each aforementioned example -- setting -- a flap portion -- setting -- the non-liquid-permeable sheet 1 and a liquid-permeable sheet 2 -- not existing -- a flap -- a member -- although it consists of only sheets, as shown in drawing 9 and drawing 10 , a liquid-permeable sheet 2 is extended into a flap portion, and prevention which is made to carry out the polymerization of the liquid permeability barrier sheet 4 to the extension portion, and is steamed can be aimed at

[0030] However, if the liquid-permeable sheet 2 is continuing crosswise completely, since urine will also become the cause which is transmitted crosswise, carries out horizontal leakage and oozes out to the external surface of a product, in the example shown in drawing 10 , a liquid-permeable sheet 2 is discontinuity-ized on the way.

[0031] In addition, the mode which made the side edge of a liquid-permeable sheet 2 the inside [ side edge / of the non-liquid-permeable sheet 1 ], and fixed the side edge section of a liquid-permeable sheet 2 to the non-liquid-permeable sheet 1 with hot melt adhesive is adopted also in the example currently illustrated by drawing 3 - drawing 7 .

[0032] manufacture of the disposable diaper concerning this invention -- facing -- the flap concerned -- a member -- since an individual disposable diaper can be obtained by supplying continuously the continuation sheet which constitutes a sheet in the direction of a line, joining it continuously to other elements (the non-liquid-permeable sheet 1, a liquid-permeable sheet 2, absorber 3, etc.) of a disposable diaper, and carrying out horizontal cutting after that, mass production method is very easy

[0033]

[Effect of the Invention] According to this invention the above passage, about \*\*\*\* at the time of wear, while being able to prevent \*\*\*\* also not only in the circumference of a foot but in a belly and the back, manufacture becomes very easy.

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DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] the expansion state of the disposable diaper concerning this invention -- it is a fracture plan a part

[Drawing 2] It is the important section outline cross section.

[Drawing 3] It is the important section outline cross section of other examples.

[Drawing 4] It is the important section outline cross section of other examples.

[Drawing 5] It is the important section outline cross section of other examples.

[Drawing 6] It is the important section outline cross section of other examples.

[Drawing 7] It is the important section outline cross section of other examples.

[Drawing 8] a flap -- a member -- it is the perspective diagram of other examples of a sheet

[Drawing 9] It is the important section outline cross section of other examples.

[Drawing 10] It is the important section outline cross section of the example of further others.

[Description of Notations]

1 Non-Liquid-permeable Sheet

2 Liquid-permeable Sheet

3 Absorber

4 Barrier Sheet

10 Flap -- Member -- Sheet

10A a flap -- a member -- a sheet

10B a flap -- a member -- a sheet

10C a flap -- a member -- a sheet

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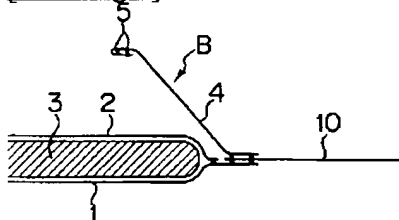
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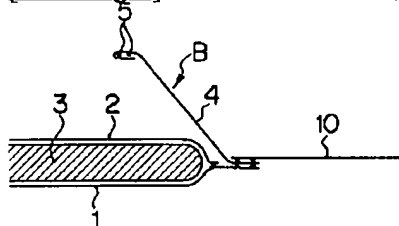
DRAWINGS

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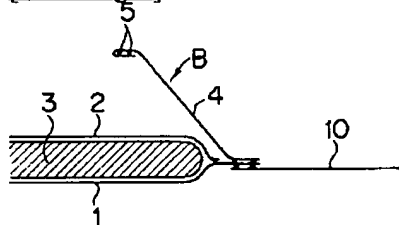
[Drawing 2]



[Drawing 3]

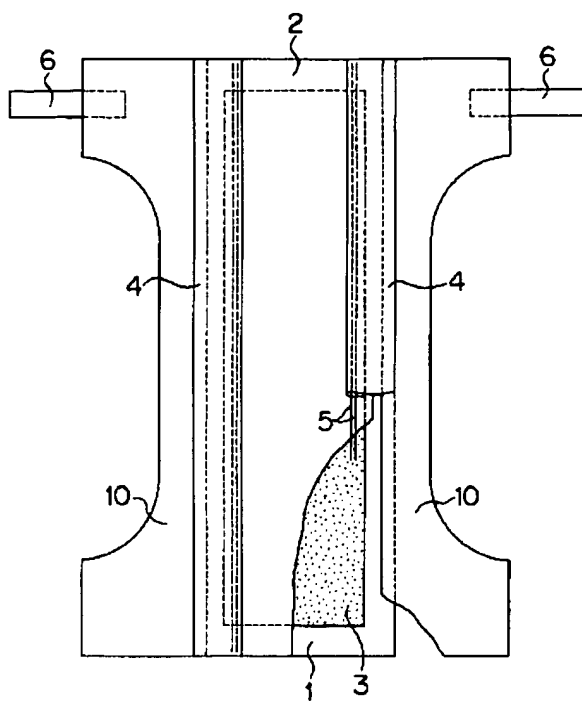


[Drawing 4]

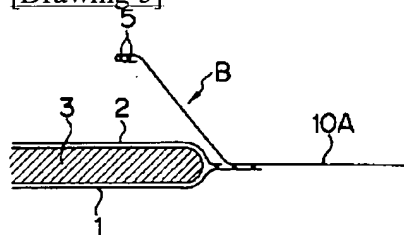


[Drawing 1]

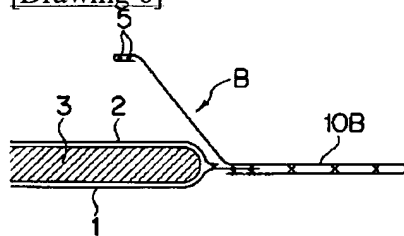




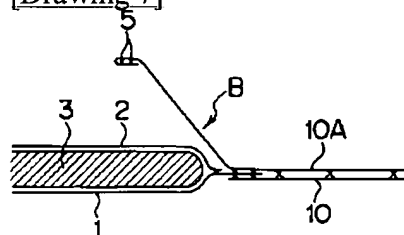
[Drawing 5]



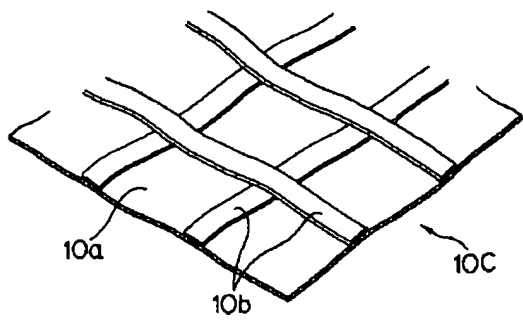
[Drawing 6]



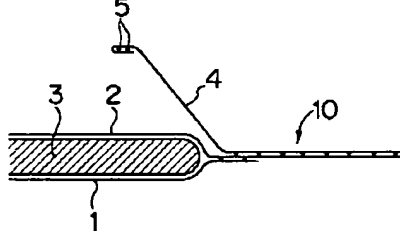
[Drawing 7]



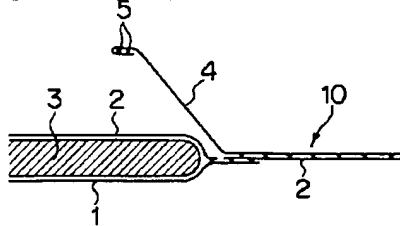
[Drawing 8]



[Drawing 9]



[Drawing 10]



[Translation done.]